

Staff Report to Council

Engineering & Parks Department

FILE: 16-8310-01/20

REPORT DATE: April 01, 2020 MEETING DATE: April 07, 2020
TO: Mayor and Council
FROM: Samantha Maki, Director of Engineering & Operations
SUBJECT: Fraser Way Roundabout – Engagement Summary and Recommendation

CHIEF ADMINISTRATIVE OFFICER REVIEW/APPROVAL:



RECOMMENDATION(S): THAT Council:

- A. Direct staff to implement Option 4 of the Fraser Way Roundabout Design Options and proceed with the initial phase of work as outlined in the April 1, 2020 staff report; AND
- B. Direct staff to utilize budget from the existing Parks Infrastructure Capital Project, Traffic Calming and Implementation Capital Project and Various Water Rehabilitation Capital Project for the initial phase of work; AND
- C. Direct staff to monitor the outcome of the work and make changes, as necessary; OR
- D. Other.

PURPOSE

The intent of this report is for staff to summarize the feedback received from the Fraser Way roundabout engagement and provide recommendations.

☐ Information Report ☒ Decision Report ☐ Direction Report

DISCUSSION

Background:

In late 2018, an independent engineering review was conducted for the Fraser Way Roundabout due to safety concerns. Typically, a park area is not situated in the middle of a roundabout. The current roundabout is very large and includes a water fountain feature in the center (no longer operational), benches and several walking paths that bring pedestrians directly through traffic to access. In addition to the safety concerns for both drivers and pedestrians in the area, the City received resident concerns regarding the condition of the park and park amenities. The road safety review is outlined in Attachment C.

In order to address these concerns, as well as park maintenance for the roundabout, the City implemented short term measures last summer. The short term measures included enhanced sightlines by cutting back the landscaping, installation of awareness signage for pedestrians and changing the 30km/hr speed limit from advisory to regulatory. Increased RCMP enforcement was also requested.

The original engineering review of the roundabout was then expanded to include review and consideration of five long-term design concepts that would help address the concerns. An engagement session was held on September 23, 2019 to share information about the proposed design options and gather community feedback. The display boards and survey were posted on haveyoursaypittmeadows.ca from September 23, 2019 to October 9, 2019.

Relevant Policy, Bylaw or Legislation:

C103 - Parks Maintenance Policy

Analysis:

The design options vary from concepts that eliminate pedestrian access to options that permit access with increased safety measures. Consideration was also given to retention of the existing infrastructure/trees, maintenance and construction costs. The main options include:

- Option 1 – No access, Limited features
- Option 2 – Access, New Infrastructure, Some Tree Retention
- Option 3 – Access, New Infrastructure
- Option 4 – Access, Retained Infrastructure, Some Tree Retention
- Option 5 – Access, Retained Infrastructure

Details of each option, associated park features, construction and maintenance costs are outlined in Attachment A.

Selection of any of the options would improve the current conditions.

Table 1 below summarizes the results of the community survey in relation to the desired first and second design choice. Option 4 – Access, Retained Infrastructure, Some Tree Retention was the leading choice. Table 2 below summarizes the results of the desired park amenity. A water feature, which has the highest construction and maintenance costs, ranked the highest. A planting bed, which has the lowest construction and maintenance costs, ranked the second highest.

Table 1. Roundabout Design Options		
Options	Top Choice	Second Choice
Option 1	5 (8.6%)	4 (7.3%)
Option 2	6 (10.3%)	8 (14.5%)
Option 3	13 (22.4%)	5 (9.1%)
Option 4	24 (41.4%)	22 (40%)
Option 5	10 (17.2%)	16 (29%)

Table 2. Park Amenity	
Option	Ranking
Water Feature	20 (35.7%)
Planting Bed	15 (26.8%)
Eco-Sculpture/Topiary	12 (21.4%)
Public Art/Sculpture	9 (16.1%)

Note: Percentages are rounded to the nearest tenth of a decimal.

Other than safety, which is the City's top priority, residents were asked to rank other factors of importance to them. The lowest number represents the most important factor, besides safety.

Table 3. Ranking of Factors		
Factor	Avg. Rank	
Access to the Roundabout	2.68	 Most Important
Aesthetics	3.25	
Retention of Trees	3.91	
Maintenance Costs	4.04	
Construction Costs	4.54	
Park Amenities	4.73	
Retention of Infrastructure	4.75	

Many comments were received with the surveys and generally outlined the following:

1. Access is important
2. Safety is most important and improved visibility
3. Implement the least expensive option in terms of construction and maintenance
4. Retain existing trees
5. Leave the roundabout the same
6. Crosswalks should not lead into roundabout
7. The need for crosswalks
8. Better maintenance/condition of roundabout

From a technical perspective (not considering costs and public amenity), the consultant recommends proceeding with either Option 1 or 3. A memo outlining the roundabout review is outlined in Attachment B. Staff do not feel that Option 1 – No Access is a realistic design and even if the area was fenced all around, many users of the area may try to take the shortest path to cross the intersection and travel around the perimeter of the roundabout. This could result in increased safety concerns. Considering safety, retention of infrastructure and trees, costs and maintenance levels, staff recommend proceeding with a phased implementation of Option 4. This also aligns with the community's feedback. In regards to the park feature amenity, staff recommend proceeding with the community's second choice – planting bed. A planting bed has significantly less construction and maintenance costs than a water feature and will allow the service levels of the park to be maintained. Park amenities were also ranked on the lower end of the importance scale.

The initial phase would involve the following actions and is estimated to cost approximately \$70,000:

- removal of two of the existing walkways to limit general access to two points
- paint crosswalks east/west along Barnston View Rd and north/south into the roundabout and install associated signage to bring awareness
- removal of existing trees at the northeast and southwest corner of the roundabout to improve visibility
- removal of the existing fountain infrastructure
- installation of water shut-off valve at the roundabout perimeter
- installation of the new planting bed park feature in the middle of the roundabout

This work could commence in the next few months and be complete by the end of 2020.

The second phase would involve planting of new trees near the centre of the roundabout, installation of additional planting beds/shrubs and associated irrigation

improvements. Staff would monitor the need for a perimeter fence and/or rectangular rapid flashing beacons.

COUNCIL STRATEGIC PLAN ALIGNMENT

- ☐ Principled Governance ☐ Balanced Economic Prosperity ☐ Corporate Excellence
☒ Community Spirit & Wellbeing ☒ Transportation & Infrastructure Initiatives
☐ Not Applicable
-

FINANCIAL IMPLICATIONS

- ☐ None ☒ Budget Previously Approved ☐ Referral to Business Planning
☐ Other

Staff propose to allocate 2020 budget from the following projects towards the initial phase of the Fraser Way Roundabout improvements:

- \$55,000 of the \$150,000 Parks Infrastructure Capital Project
- \$10,000 of the Traffic Calming and Implementation Capital Project
- \$5,000 of the Various Water Rehabilitation Capital Project

The second phase is estimated to cost \$25,000 and would be revisited as part of 2021 Business Plan.

The annual maintenance costs of approximately \$7,000 could be accommodated within the current parks operating budget.

PUBLIC PARTICIPATION

- ☒ Inform ☐ Consult ☐ Involve ☐ Collaborate ☐ Empower

The community was previously involved in providing feedback on the design options for the Fraser Way Roundabout and associated amenities. The community will be informed of the engagement summary and recommended implementation approach.

KATZIE FIRST NATION CONSIDERATIONS

- Referral ☐ Yes ☒ No

SIGN-OFFS

Written by:

S. Maki, Director of Engineering &
Operations

Reviewed by:

D. Chamberlain, Director of Parks,
Recreation and Culture

ATTACHMENTS:

- A. Fraser Way Roundabout - Engagement Boards
- B. 2020 Fraser Way Roundabout Improvement Options Report from ISL
- C. 2018 Road Safety Review Report from ISL

1 - WELCOME

Attachment A

WHAT'S HAPPENING:

The City of Pitt Meadows is seeking your feedback on a number of proposed long-term measures to address safety and maintenance concerns for the Fraser Way Roundabout and Park in Osprey Village. The current roundabout is very large and includes a water feature, planting beds and benches in the centre as well as several walking paths that bring pedestrians unsafely and directly through traffic. In addition to the safety concerns for both drivers and pedestrians in the area, the City has received resident concerns regarding the condition of the park and park amenities.

The City is committed to community involvement and is holding a public engagement meeting to present some proposed concept plans for the roundabout and to gather your feedback on them. Your feedback will inform how the roundabout will be redesigned.

GOALS FOR TODAY'S OPEN HOUSE

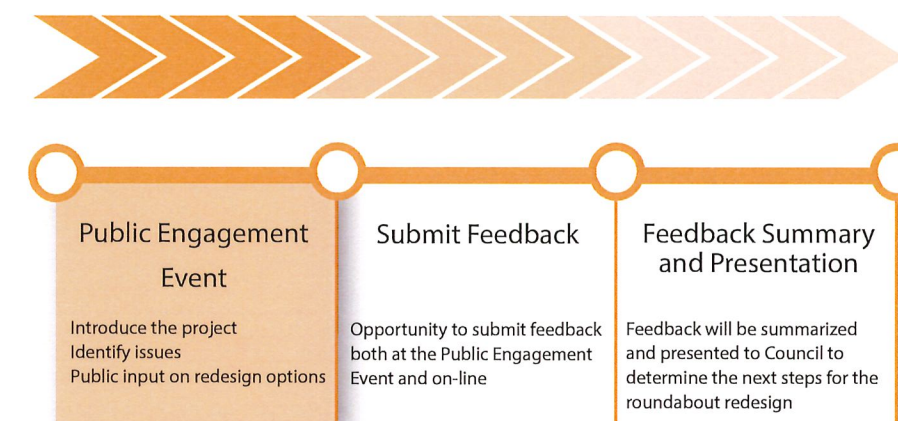
- Identify issues with the existing roundabout
- Review the roundabout redesign options
- Get your feedback on the redesign options

PROJECT TIMELINE:

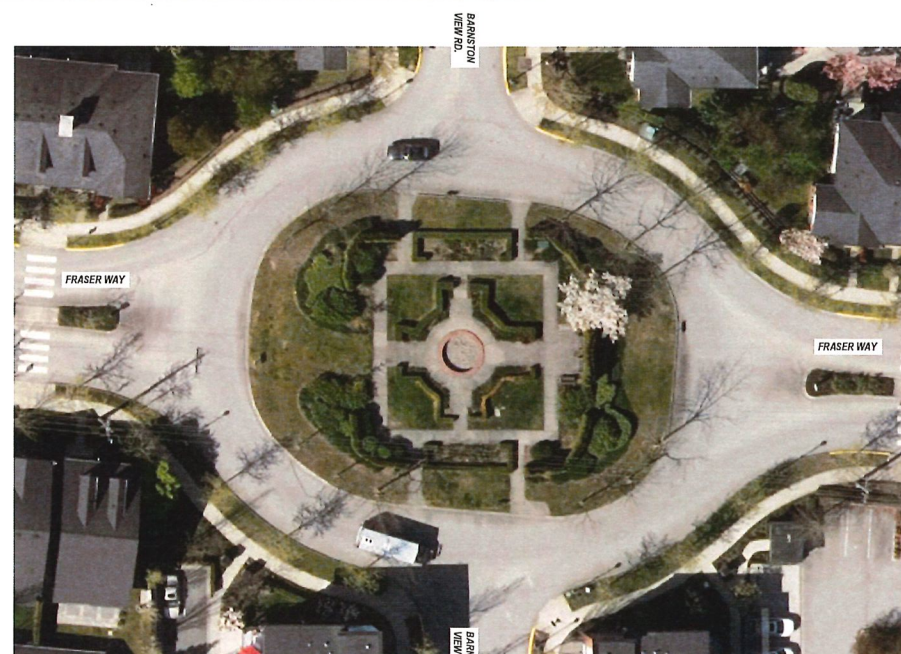
SEPTEMBER 23, 2019

SEPTEMBER 23-OCTOBER 9

FALL, 2019



LOCATION PLAN



AERIAL VIEW

The large roundabout currently features an outer ring of trees, inner ornamental planting beds, benches and a central water fountain (currently not operational). Multiple paths cross the roundabout but currently there are no crosswalks leading to the roundabout. Pedestrians cross the roads at multiple points to access the roundabout park.



The current roundabout design has two major issues:

Issue 1: It is very uncommon for a public park to be located in a roundabout due to pedestrian safety issues. There are no crosswalks to the roundabout and the maturing outer ring of trees and hedges block driver sightlines.



Issue 2: The design of the original roundabout park with its ornamental water feature and formal planting beds require maintenance levels that the City cannot realistically provide. This has led to a decline in the appearance and useability of the park and its features (the current water fountain is broken).

FRASER WAY ROUNDABOUT REDESIGN

Public Engagement Event | September 23, 2019

2 - REDESIGN CONCEPTS 1-3

In response to the current public safety and maintenance issues at the roundabout, the City is proposing to redesign it. Roundabout redesign options are outlined below and on the next board. Each option offers different public amenities, aesthetics, public access to the roundabout, and retention of existing features. As well, each option comes with different construction and maintenance costs.

OPTION 1

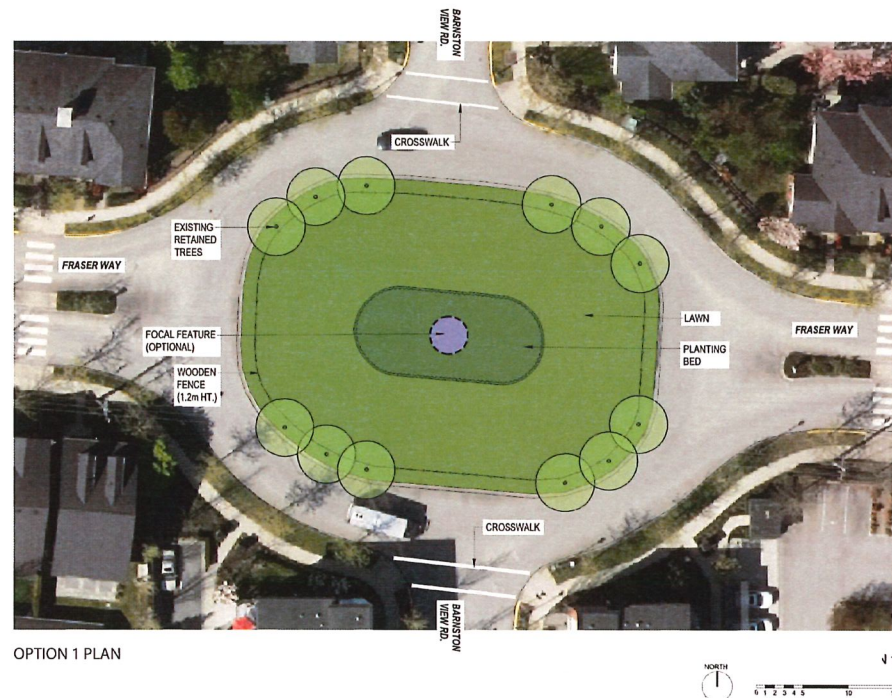
DESCRIPTION: This design entails the removal of public access to the roundabout. The existing paths and ornamental planting beds would be removed, and a perimeter barrier fence as well as a single planting bed with possible central focal feature would be introduced.

See Board 4 for examples of a focal feature that could be introduced to the roundabout.

Estimated Construction Cost: \$160,000

Estimated Annual Maintenance Cost: \$4,000

(Costs include Optional Items but exclude a Focal Feature)



OPTION 1 PLAN

OPTION 2

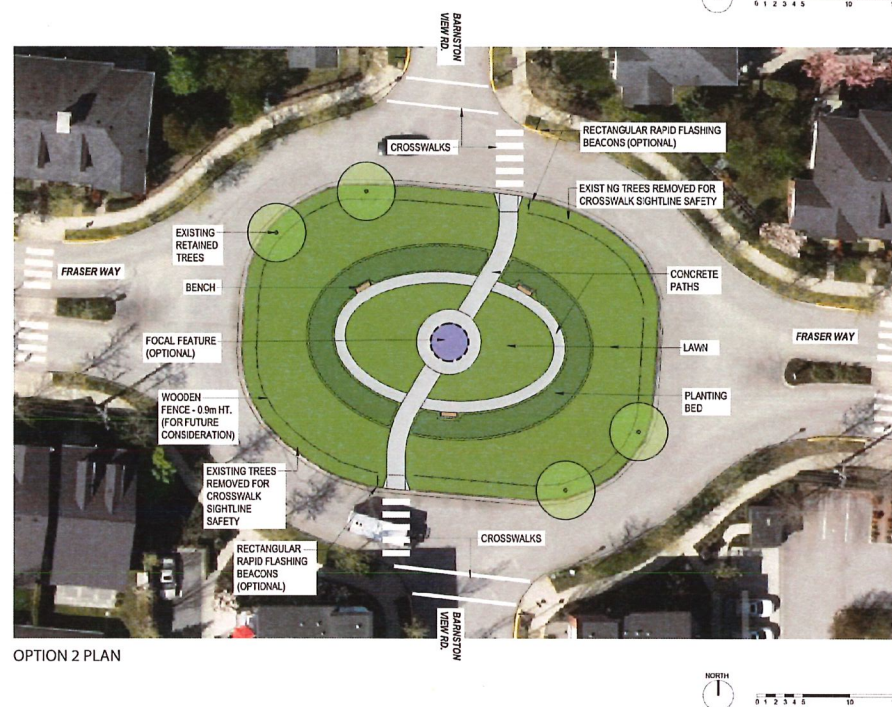
DESCRIPTION: This design would encourage public access to the roundabout park in two locations. The existing paths and ornamental planting beds would be removed as well as some perimeter trees that currently block driver sightlines at the roundabout. A new single pathway would be added to the roundabout, linking the new north and south crosswalks. The centre of the roundabout would feature a new oval planting bed and pathway as well as bench seating, a lawn area and a possible focal feature. See Board 4 for examples of a focal feature that could be introduced to the roundabout.

Rapid flashing beacons may be introduced at the crosswalks to alert drivers of pedestrian activity.

Estimated Construction Cost: \$244,000

Estimated Annual Maintenance Cost: \$3,000

(Costs include Optional Items but exclude a Focal Feature)



OPTION 2 PLAN

OPTION 3

DESCRIPTION: This design would encourage public access to the roundabout park in two locations. The existing paths and ornamental planting beds would be removed as well as all of the perimeter trees (some of which currently block driver sightlines at the roundabout). A new single pathway would be added to the roundabout, linking the new north and south crosswalks. The centre of the roundabout would feature a new ring of trees, an oval planting bed and pathway as well as bench seating, a lawn area and a possible focal feature.

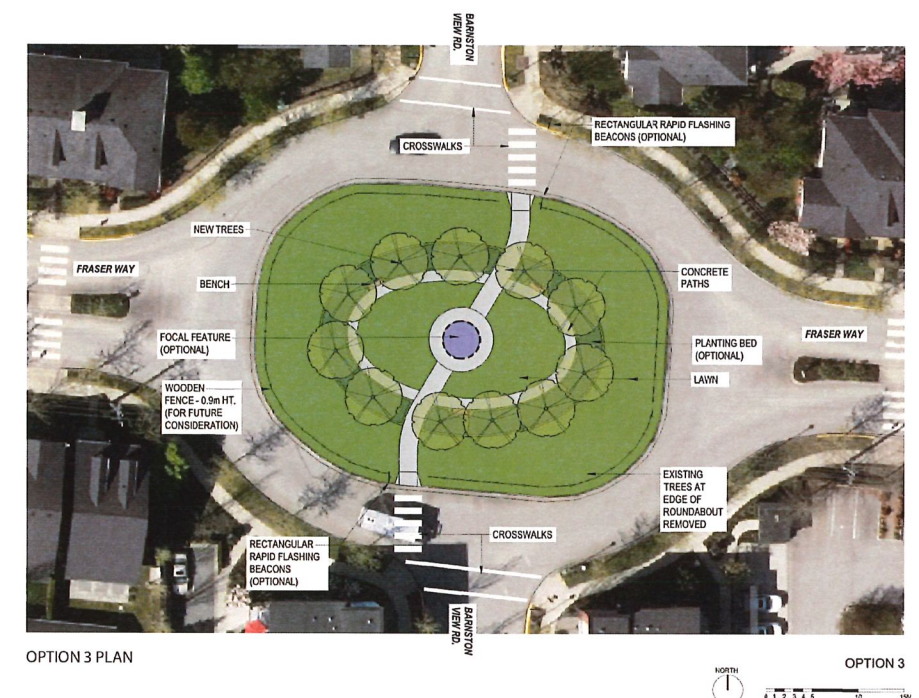
See Board 4 for examples of a focal feature that could be introduced to the roundabout.

Rapid flashing beacons may be introduced at the crosswalks to alert drivers of pedestrian activity.

Estimated Construction Cost: \$266,000

Estimated Annual Maintenance Cost: \$3,000

(Costs include Optional Items but exclude a Focal Feature)



OPTION 3 PLAN



OPTION 3 PERSPECTIVE (showing an optional perimeter fence)

3 - REDESIGN CONCEPTS 4-5

OPTION 4

DESCRIPTION: This design would allow public access to the roundabout park at two points with openings at a new perimeter fence. Many of the existing landscape features would be retained in this redesign. This would include the paths, the planting beds at the centre of the space as well as perimeter trees that do not block driver sightlines at the roundabout. New north and south crosswalks would be added to the roundabout as well as new trees and a possible focal feature at the centre of the roundabout.

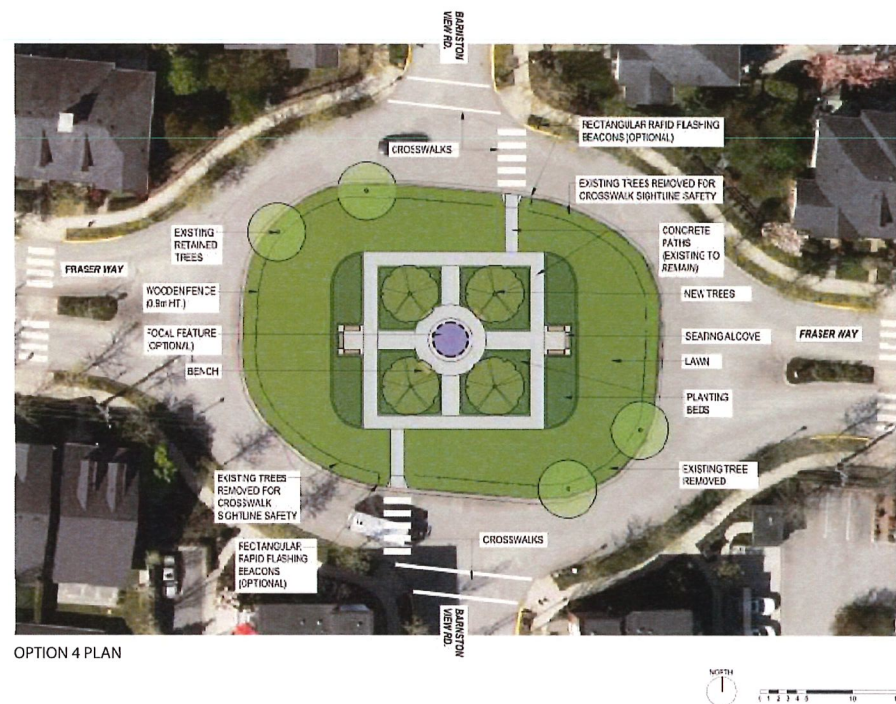
See Board 4 for examples of a focal feature that could be introduced to the roundabout.

Rapid flashing beacons may be introduced at the crosswalks to alert drivers of pedestrian activity.

Estimated Construction Cost: \$182,000

Estimated Annual Maintenance Cost: \$5,000

(Costs include Optional Items but exclude a Focal Feature)



OPTION 4 PLAN

OPTION 5

DESCRIPTION: This design would allow public access to the roundabout park at two points with openings at a new perimeter fence. Many of the existing landscape features would be retained in this redesign. This would include the paths and planting beds at the centre of the space. The perimeter trees would be removed (some of which block driver sightlines at the roundabout). New north and south crosswalks would be added to the roundabout as well as a new perimeter fence, trees and a possible focal feature at the centre of the roundabout.

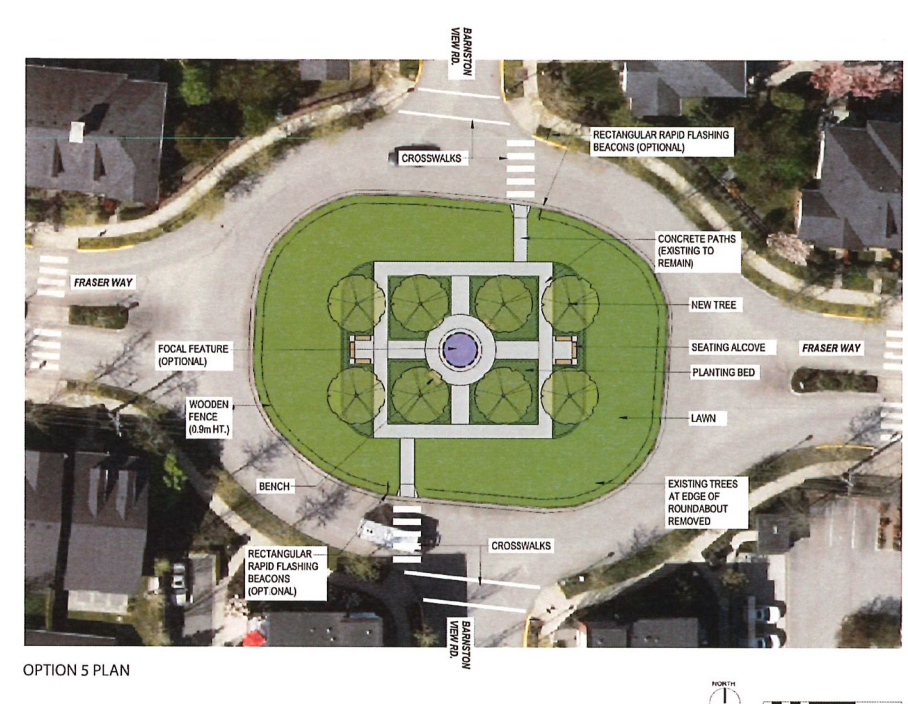
See Board 4 for examples of a focal feature that could be introduced to the roundabout.

Rapid flashing beacons may be introduced at the crosswalks to alert drivers of pedestrian activity.

Estimated Construction Cost: \$188,000

Estimated Annual Maintenance Cost: \$5,000

(Costs include Optional Items but exclude a Focal Feature)



OPTION 5 PLAN



OPTION 5 PERSPECTIVE

4 - FOCAL FEATURE OPTIONS

The roundabout redesign plans may include a new focal feature at the centre of the roundabout. Focal feature options that are being considered for the redesigned roundabout are shown below.

PLANTING BED



Construction Cost Range: \$10,000
Annual Maintenance Cost Range: \$2,000-4,000

ECO-SCULPTURE / TOPIARY



Construction Cost Range: \$30,000-50,000
Annual Maintenance Cost: \$5,000

PUBLIC ART/ SCULPTURE



Construction Cost Range: \$45,000-75,000
Annual Maintenance Cost Range: \$2,000-5,000

WATER FEATURE



Construction Cost Range: \$80,000-120,000
Annual Maintenance Cost Range: \$8,000-12,000

To: **City of Pitt Meadows** Date: **April 1, 2020**

Attention: **Samantha Maki, Director of Engineering** Project No.: **32391**

Cc: **Randy Evans, Manager of Parks & Operations**
Joe Almeida, Manager of Engineering and Facilities

Reference: **Osprey Village Roundabout Park – Improvement Options**

From: **Matt Gibson, E.I.T.,**
Ian McKinnon, P. Eng.

1.0 Background

The City of Pitt Meadows (the City) retained ISL Engineering and Land Services Ltd. (ISL) to conduct a road safety review, visual condition assessment, and based on findings, develop conceptual design options for Roundabout Park, located in Osprey Village, Pitt Meadows. Currently, the existing roundabout is a local park that allows pedestrians to enter/exit the park at four (4) access points (two from the south, and two from the north). As no crosswalks are provided across the circulating path of traffic, the City has raised safety concerns regarding the possible conflicts and probability of occurrence between pedestrians and moving vehicles within the roundabout. The City also reported that the park features were failing and that the park required a significant amount of maintenance. Additionally, the City has noted that the complex design of the current roundabout landscape makes maintenance of the roundabout difficult.

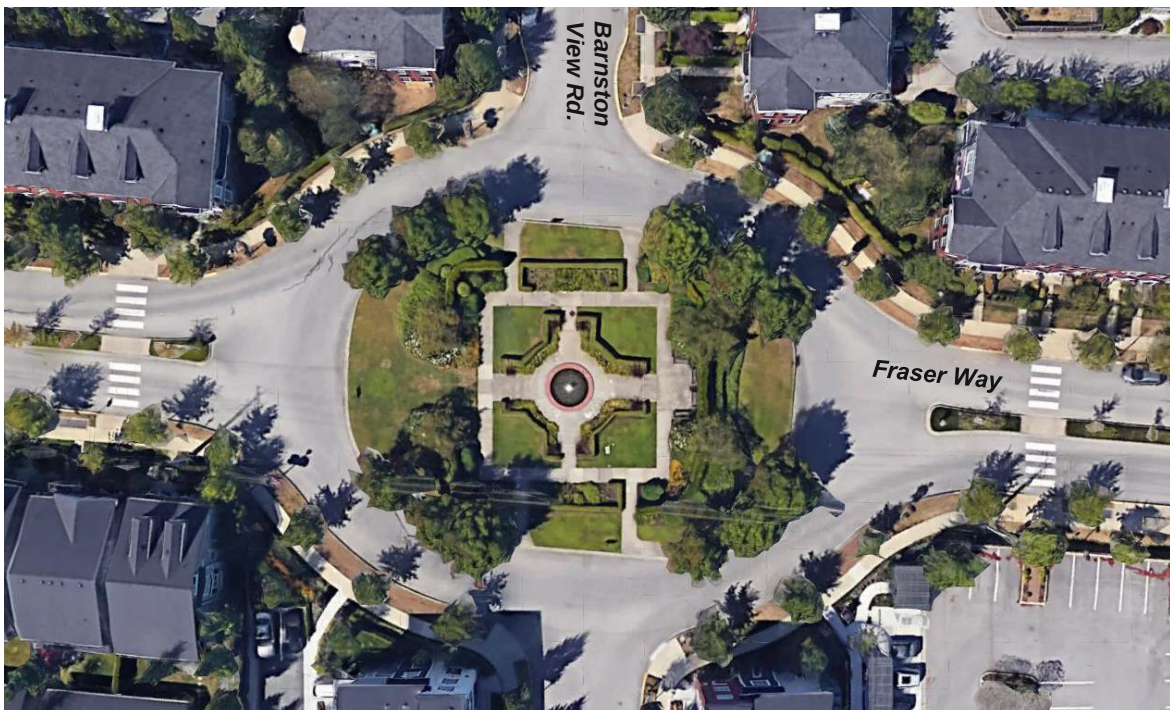


Figure 1: Existing Osprey Village Roundabout

2.0 Road Safety Review Findings and Potential Issues

ISL completed the road safety review in 2018 and provided findings in a memorandum dated October 12th, 2018. No capacity or collision analysis was undertaken. It was found that many pedestrians use the roundabout's central island as a shortcut to get to the other side of the intersection, which generates a high number of pedestrians crossing the circulatory roadway. A significant portion of these pedestrians are children, which shows the importance of road safety in the area. Some drivers unfamiliar with the area may not expect crossing pedestrians at the roundabout, causing abrupt stop and rear-end collision risk. It was also found that the path of traffic is hidden partially from pedestrians/cyclists by landscaped trees situated close to the curb edge. The review concluded that the existing configuration was not safe and suggested several improvements. As part of this design process, these suggested improvements were expanded upon and include:

- Reducing number of pedestrian access points
 - By reducing the number of access points, the conflict points between pedestrians/cyclists and vehicles would decrease
 - Removal of the farthest crossing point relative to oncoming traffic would create less conflict points for vehicles attempting to enter the roundabout from Barnston View Road
- Creating longer sightlines by pulling landscaped trees and shrubbery away from vehicle travel path
 - By pulling back trees from the curb, sightlines would be elongated to allow pedestrians/cyclists more time to see vehicles and vice versa
- Minimizing the attraction of the park by eliminating public art and water features
 - By minimizing the attraction of the park/roundabout the number of pedestrians who will visit the park could decrease although based on the review most of the pedestrians use the roundabout to cut through the intersection
- Increasing traffic markings and road signage
 - Increasing traffic markings, such as cross walk markings, and crosswalk road signage would result in better recognition of the pedestrian/cyclists for drivers
 - RRFBs (Rectangular Rapid Flashing Beacons) could be used to provide additional warning to vehicles

3.0 Existing Conditions

Roundabout Park is located at the intersection of Fraser Way and Barnston View Road in Osprey Village, City of Pitt Meadows. Fraser Way is classified as a collector, while Barnston View Road is classified as a local road. Fraser Way and Barnston View Road both have one travel lane in each direction with on-street parking on both sides. A landscaped median is also found for Fraser Way in the vicinity of the roundabout. The posted speed limit is 50 kilometers per hour (kph) on all roadways near the roundabout; but it is reduced to 30 kph within the roundabout. The current roundabout has no crosswalk markings or crosswalk signage.

The roundabout is surrounded by residential townhouses. Additionally, Osprey Village market and Waterfront Commons Park are located along Barnston View Road, south of the roundabout, which results in a high number of pedestrians and cyclists.

Surface Features

The existing surface features within the roundabout appears to be original infrastructure constructed in 2005 and consists of grass, sidewalks, benches, low lying vegetation and trees. Most of the features appear to be functional and in fair condition. Several concrete sidewalk panels have lifted and/or are cracked. The water fountain no longer works and is in poor condition (The condition and location of the existing water service line is unknown). The existing design of the roundabout landscape requires considerable upkeep from City operations.

Underground Utilities

To conduct a high level review of the existing underground infrastructure ISL completed a BC One Call of the area and reviewed record drawings supplied by the City of Pitt Meadows, and 3rd Party record drawings. Subsurface infrastructure within the landscape areas of the roundabout includes:

Sanitary Sewers

- Sanitary manhole (MH) "S15" located just north of the centre of the roundabout within landscaped area
- 200mm dia sanitary sewer runs south to north to MH S15 along centre of Barnston View Road
- 300mm dia sanitary sewer runs west to east to MH S15 along north side of Fraser Way
- 300mm dia sanitary sewer runs west to east from MH S15 along north side of Fraser Way

Storm Sewers

- Storm sewer MH "D10" located just north of the centre of the roundabout within landscaped area
- 450mm dia storm sewer runs east to west to D10 along north side of Fraser Way
- 750mm dia storm sewer runs east to west from D10 along north side of Fraser Way
- 750mm dia storm sewer runs north to south to manhole D10 along centre of Barnston View Road

Watermain

- 300mm dia watermain runs north to south along east side of Barnston View Road through roundabout
- 200mm dia watermain runs east to west along north side of Fraser Way through roundabout



Figure 2: Existing water fountain looking west



Figure 3: Ex. Watermain inline valve cluster looking north

Third Party Utilities

- ForticBC 114 DP/PE gas line runs along the south edge of the roundabout
- BC Hydro underground (U/G) primary line runs through north to south through the roundabout then east along the south edge of Fraser Way

- There is a small BC Hydro U/G secondary line which ties into the north area of the roundabout from the north east. This is assumed to be the electrical supply for the water fountain.
- City operations staff noted there is no current control valve for the water feeding the roundabout and noted that any isolation for maintenance requires the shutdown of a section of existing main.
- Telus record drawings show underground ducts running through the south section of the roundabout along the south edge of Fraser Way adjacent to property lines, as well as north to south through the east portion of the roundabout along the east edge of Barnston View Road.

Based off the record drawings and City of Pitt meadows servicing bylaw 2058 pipe materials are as follows:

- All watermain are expected to be Ductile Iron (DI), with a life expectancy of ~100 years
- All storm sewers are expected to be Concrete pipe, with a life expectancy of ~50 years
- All sanitary sewers are expected to be PVC DR35, with a life expectancy of ~50-70 years

It is expected that at a minimum, assuming proper installation and material selection by the installation contractor, and barring no major utility failures, no city owned subsurface utilities will need to be replaced until year 2055. It is assumed that 3rd party utilities were installed in 2005, and do not need replacement. City should confirm replacement programs with the necessary 3rd party utilities prior to detailed design/construction.

4.0 Options and Improvements

Based on the above, ISL developed five (5) concepts to reduce the probability of pedestrian vehicle conflict. The concepts did not consider utility replacements. The existing water feature is no longer operational and is in poor condition. ISL has included an optional focal feature in all designs but has excluded the cost of this feature from the construction and maintenance estimates. The removal of the existing water fountain is included in the following cost estimates. The concepts looked to simplify maintenance requirements. The following section summarizes the five (5) design options proposed by ISL. These design schematics are provided in the appendices for reference:

Option 1 – No access, limited features

- Estimated Construction Cost: \$160,347.20
- Estimated annual maintenance costs: \$4,000
- Number of access points: 0
- 1.2m wooden barrier fence added to deter and minimize pedestrian access to the roundabout
- Optional focal feature
- Existing trees retained
- Parallel crosswalk markings at Barnston View Road entrances

Option 2 – Access, new infrastructure, some tree retention

- Estimated Construction Cost: \$244,250.50
- Estimated annual maintenance costs: \$3,000
- Number of access points: 2
- 0.9m wooden barrier fence for future consideration included to reduce pedestrian access to the roundabout to the two crosswalk locations
- Optional focal feature
- Shrub beds added to create a central, park-like space separated from vehicle traffic
- Existing trees in the northeast and southwest corners removed to improve sightlines for pedestrians and drivers.

- Existing trees in the northwest and southeast corners retained except for those conflicting with BC Hydro power lines.
- Parallel crosswalk markings at Barnston View Road entrances
- Zebra stripe crosswalk markings and road signage
- Rectangular Rapid Flashing Beacon (Optional)

Option 3 – Access, new infrastructure

- Estimated Construction Cost: \$265,609.50
- Estimated annual maintenance costs: \$3,000
- Number of access points: 2
- 0.9m wooden barrier fence for future consideration included to reduce pedestrian access to the roundabout to the two crosswalk locations
- Optional focal feature
- Shrub beds added to create a central, park-like space separated from vehicle traffic
- Existing trees removed to improve sightlines for pedestrians and drivers
- A new ring of trees planted around central park space. Further investigation is required to determine if trees could be relocated
- Parallel crosswalk markings at Barnston View Road entrances
- Zebra stripe crosswalk markings and road signage
- Rectangular Rapid Flashing Beacon (Optional)

Option 4 – Access, retained infrastructure, some tree retention

- Estimated Construction Cost: \$182,171.60
- Estimated annual maintenance costs: \$5,000
- Number of access points: 2
- 0.9m wooden barrier fence added to deter and minimize pedestrian access to the roundabout
- Optional focal feature
- Retain existing concrete paths
- Existing trees in the northeast and southwest corners removed to improve sightlines for pedestrians and drivers.
- Existing trees in the northwest and southeast corners retained except for those conflicting with BC Hydro power lines.
- New planting beds, benches and trees added to create a central, park-like space separated from vehicle traffic
- Parallel crosswalk markings at Barnston View Road entrances
- Zebra stripe crosswalk markings and road signage
- Rectangular Rapid Flashing Beacon (Optional)

Option 5 – Access, retained infrastructure

- Estimated Construction Cost: \$187,683.60
- Estimated annual maintenance costs: \$5,000
- Number of access points: 2
- 0.9m wooden barrier fence added to deter and minimize pedestrian access to the roundabout
- Optional focal feature
- Retain existing concrete paths
- Existing trees removed to improve sightlines for pedestrians and drivers



- New planting beds, benches and trees added to create a central, park-like space separated from vehicle traffic. Further investigation required to determine if existing trees could be relocated.
- Parallel crosswalk markings at Barnston View Road entrances
- Zebra stripe crosswalk markings and road signage
- Rectangular Rapid Flashing Beacon (Optional)

Option Comparisons

Please see the following page for comparisons of the upgrade options relative to the current roundabout park.



Table 1: Comparison of Existing roundabout configuration and the 5 proposed roundabout improvement options

Existing	Option 1	Option 2	Option 3	Option 4	Option 5
Potential for Pedestrian and Vehicle Conflict					
High number of access points resulting in an increased probability of pedestrian vehicle conflicts	Best: No access. Significantly reduces probability of pedestrian vehicle conflicts	Better: 2 access points. Reduces possible conflict points for pedestrians and vehicles	Better: 2 access points. Reduces possible conflict points for pedestrians and vehicles	Better: 2 access points. Reduces possible conflict points for pedestrians and vehicles	Better: 2 access points. Reduces possible conflict points for pedestrians and vehicles
No crosswalk or traffic markings	Best: No Access. Crosswalk markings are not required	Better: Crosswalk markings would result in better recognition of crosswalk for drivers and reduce probability of pedestrian vehicle conflicts	Better: Crosswalk markings would result in better recognition of crosswalk for drivers and reduce probability of pedestrian vehicle conflicts	Better: Crosswalk markings would result in better recognition of crosswalk for drivers and reduce probability of pedestrian vehicle conflicts	Better: Crosswalk markings would result in better recognition of crosswalk for drivers and reduce probability of pedestrian vehicle conflicts
No crosswalk signage	Best: Rectangular Rapid Flashing Beacons and crosswalk signage to alert drivers of upcoming crosswalk and would result in better recognition of the pedestrian/cyclists for drivers	Best: Rectangular Rapid Flashing Beacons and crosswalk signage to alert drivers of upcoming crosswalk and would result in better recognition of the pedestrian/cyclists for drivers	Best: Rectangular Rapid Flashing Beacons and crosswalk signage to alert drivers of upcoming crosswalk and would result in better recognition of the pedestrian/cyclists for drivers	Best: Rectangular Rapid Flashing Beacons and crosswalk signage to alert drivers of upcoming crosswalk and would result in better recognition of the pedestrian/cyclists for drivers	Best: Rectangular Rapid Flashing Beacons and crosswalk signage to alert drivers of upcoming crosswalk and would result in better recognition of the pedestrian/cyclists for drivers
Pedestrian/ Vehicle sightlines at crosswalks	Best: No Access.	Good: Existing trees in the northeast and southwest corners removed to elongate sightlines	Better: Existing trees removed to elongate and improve sightlines for pedestrians and drivers	Good: Existing trees in the northeast and southwest corners removed to elongate sightlines	Better: Existing trees removed to elongate and improve sightlines for pedestrians and drivers
Public Amenity					
Public Amenity	Worse: No Access. No public use. Space is no longer a public amenity	Better: Shrub beds added to create a central, park-like space separated from vehicle traffic	Best: A new ring of trees and shrub beds added to create a central, park-like space separated from vehicle traffic	Good	Good
Aesthetic appeal	Worse	Better	Best	Good	Good
Capital Costs					
Maintenance Costs ~\$5,000 per year excluding fountain	Better: Approximately \$4,000 per year	Best: Approximately \$3,000 per year	Best: Approximately \$3,000 per year	Good: Approximately \$5,000 per year	Good: Approximately \$5,000 per year
Construction Costs	Estimated \$160,000	Estimated \$244,000	Estimated \$266,000	Estimated \$182,000	Estimated \$188,000

- Note
- Capital Costs do not include considerations or provisions for the optional focal feature
 - All options are improvements on existing roundabout design

5.0 Summary and Conclusions

ISL reviewed the existing roundabout and considers the existing roundabout unsafe due to poor sightlines at pedestrian crossings, multiple access points resulting in higher probability of pedestrian and vehicle conflicts, and a lack of warning signs and pavement markings. Moreover, existing infrastructure and surface features were found to be in poor-fair condition and have deteriorated from their initial construction in 2005, including the existing water feature which no longer works and is in poor condition.

ISL developed five (5) options for the upgrade of the roundabout park in Osprey Village. ISL reviewed the previously completed road safety review of the roundabout park to determine design considerations to lower the probability of pedestrian vehicle conflict. All five options provided have been designed to reduce the probability of possible pedestrian vehicle conflict and are an improvement on the current design while providing aesthetic appeal to the roundabout, and lowering the City's associated risk, and maintenance costs. Based on the review, ISL recommends proceeding with Option 1 or Option 3.

We trust that this memorandum meets the City of Pitt Meadows requirements. If there are any questions or further information is required, please do not hesitate to contact the undersigned.

Regards,



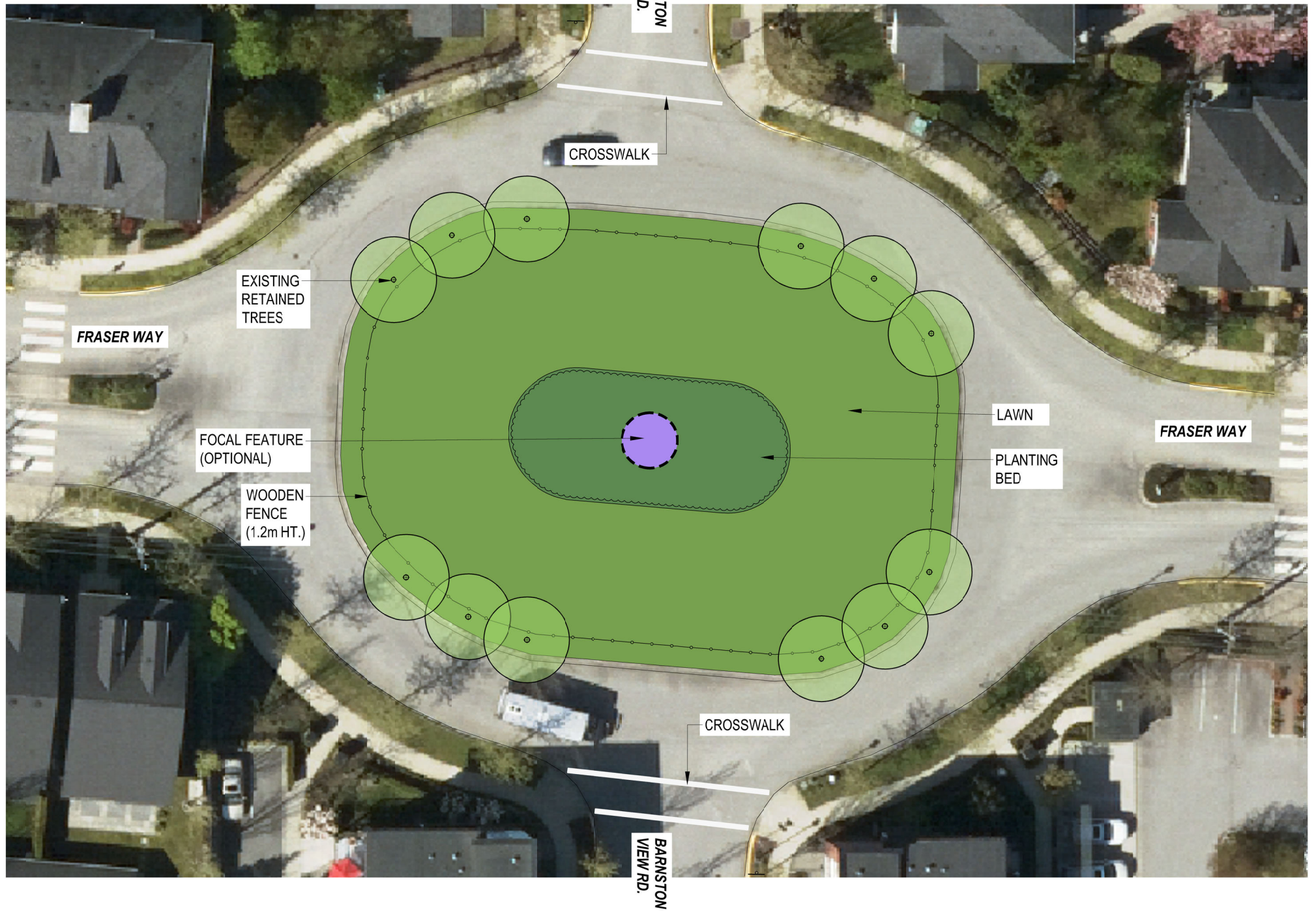
Matt Gibson, EIT
Project Engineer

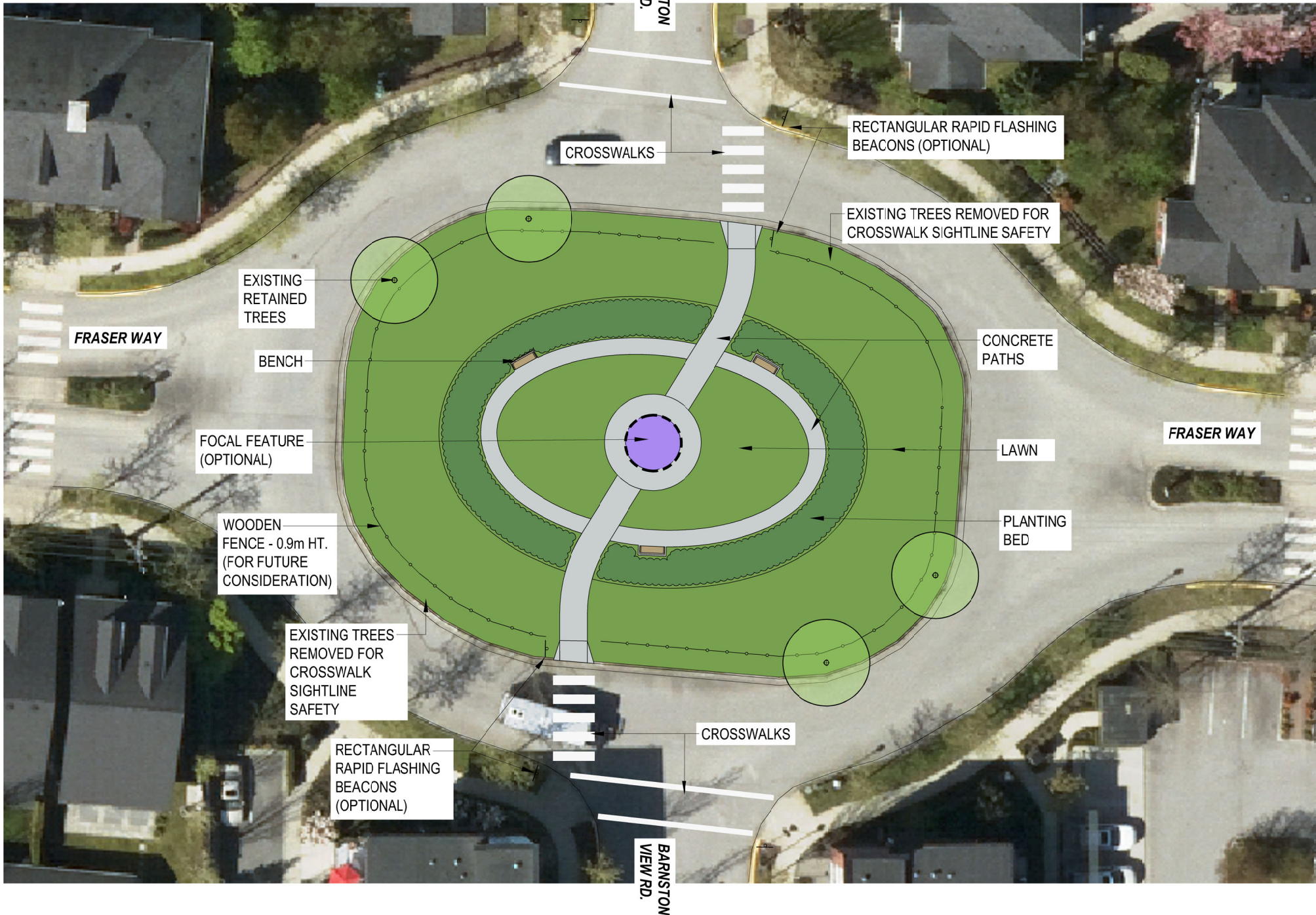


Ian McKinnon, P. Eng.,
Senior Project Engineer

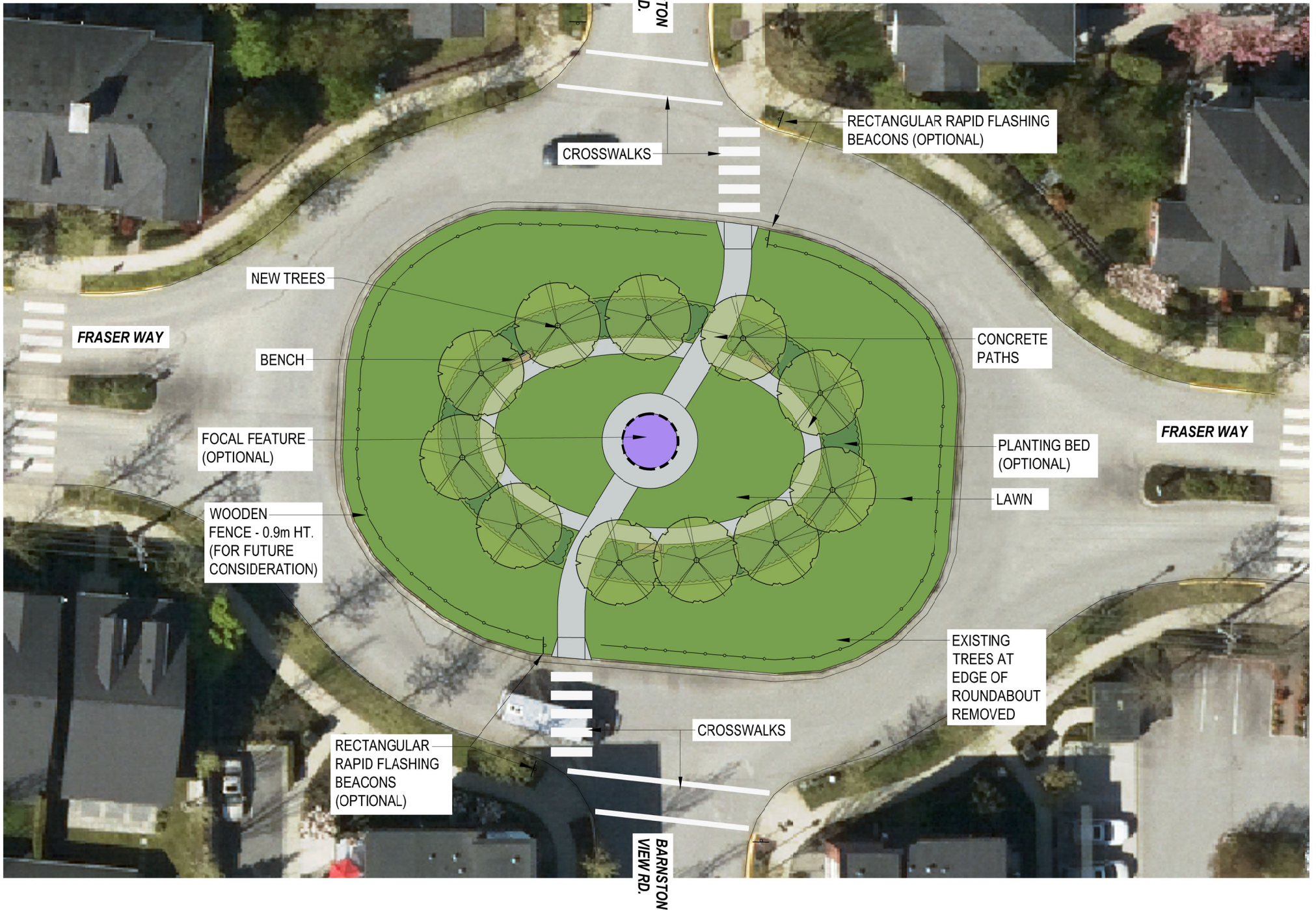
Attachments:

1. *Osprey Village Options Schematics*
2. *Osprey Village Options Class C Cost Estimates*
3. *Road Safety Review (ISL, October 12th, 2018)*



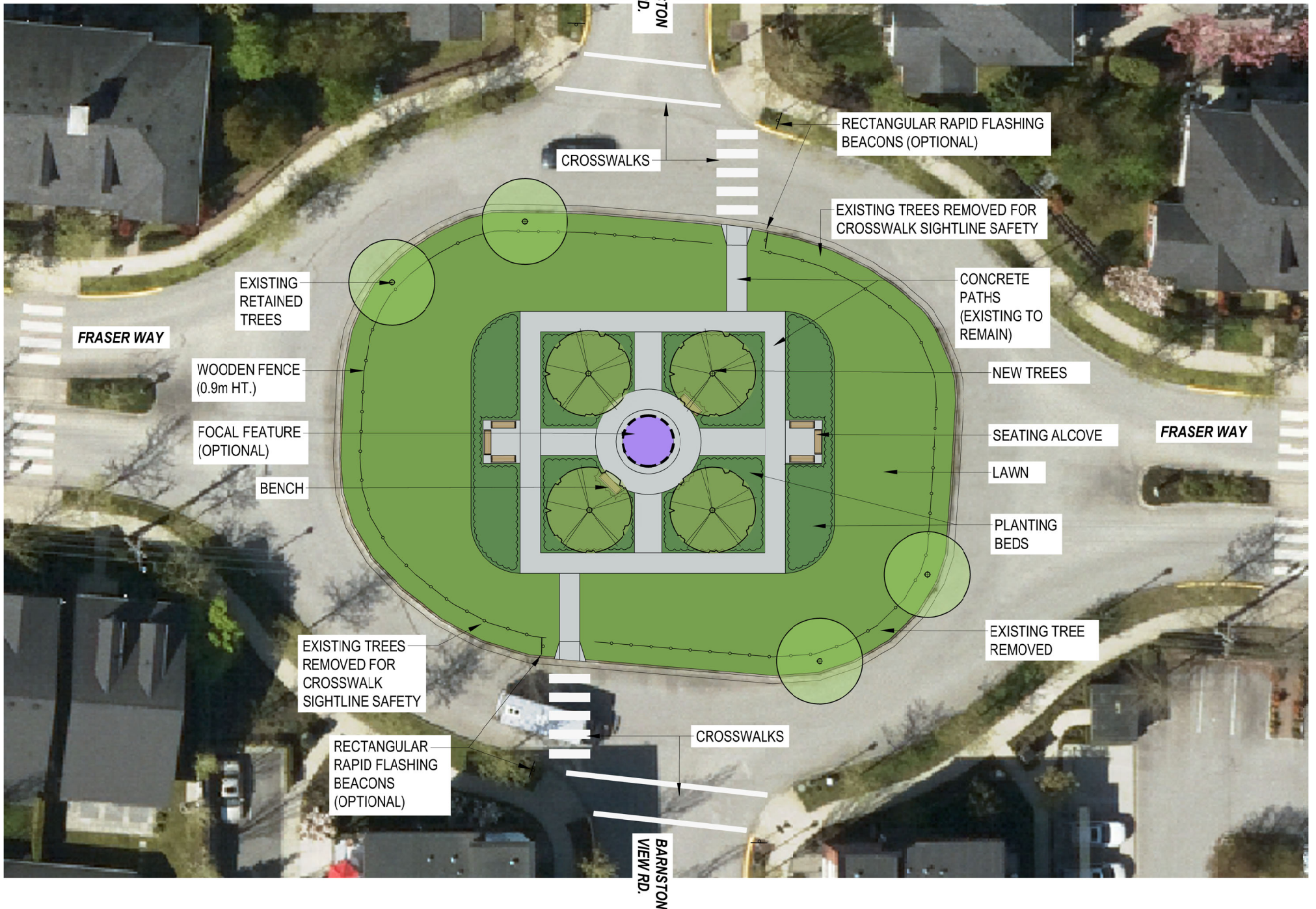


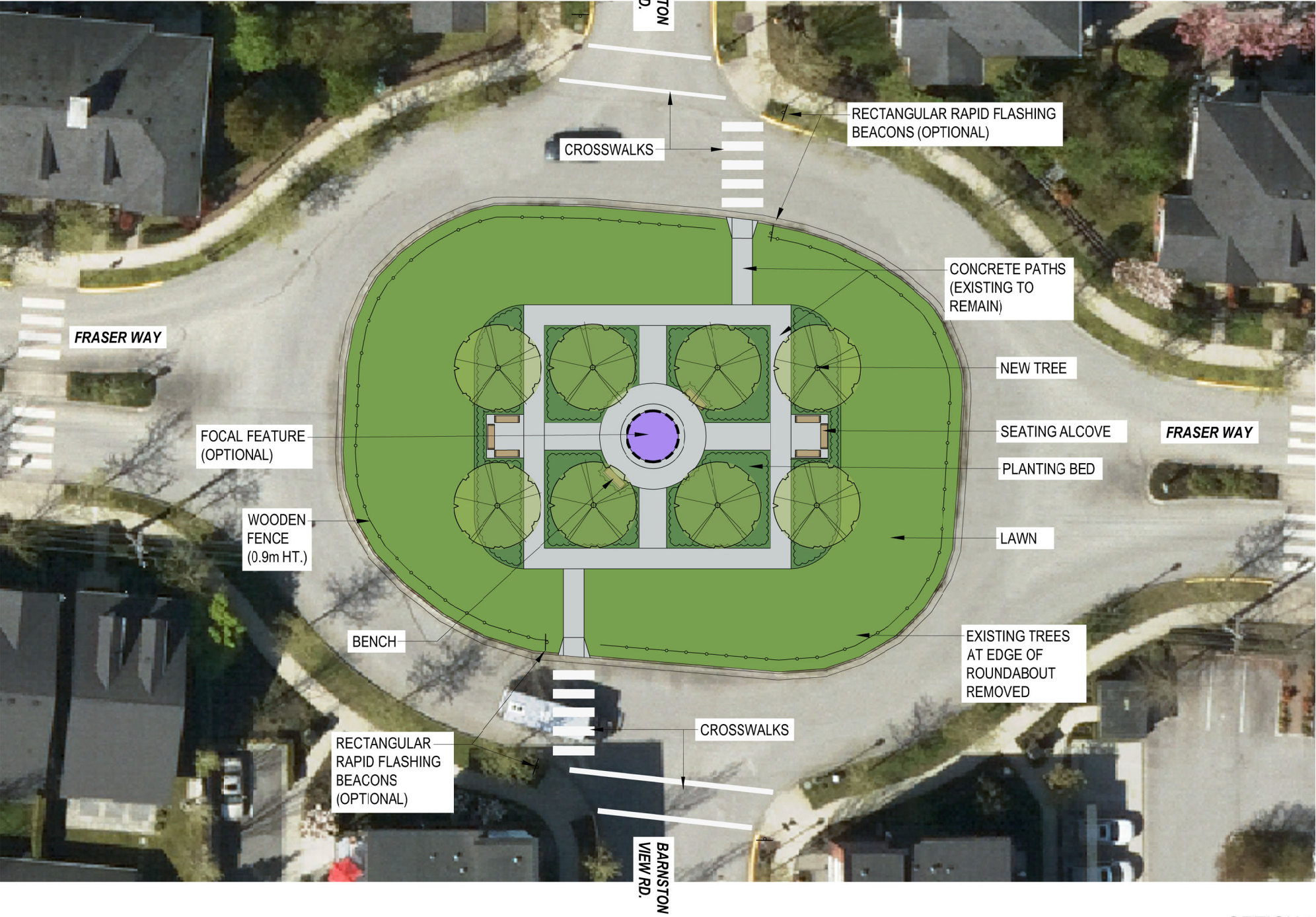
OPTION 2



OPTION 3







BARNSTON
VIEW RD.

FRASER WAY

FRASER WAY

BARNSTON
VIEW RD.



OPTION 5



To: **City of Pitt Meadows**

Date: **October 12, 2018**

Attention: **Samantha Maki**

Project No.: **32167**

Cc: **Ian McKinnon and Matt Gibson (ISL)**

Reference: **Road Safety Review of the Roundabout Park, Osprey Village – Revised April 1st, 2020**

From: **Omid Ebadi and Borg Chan**

1.0 Background and Purpose

The City of Pitt Meadows (the City) retained ISL Engineering and Land Services Ltd. (ISL) for road safety review of the existing Roundabout Park, located in the Osprey Village, Pitt Meadows. The central island of the roundabout is currently set up to be a local park and it encourages pedestrians to enter/exit the park at four access points i.e. two each from the north and south legs. As no crosswalks are provided across the circulating path of the roundabout, the City has the safety concerns regarding the conflicts between crossing pedestrians and moving vehicles within the roundabout. This technical memorandum summarized the study findings, identified the potential issues, and provided the suggestions to address the City's concerns. It is noted that this road safety review is mainly based on the findings from the field review, and no capacity or collision analysis was undertaken.

2.0 Study Intersection

Roundabout Park is located at the intersection of Fraser Way and Barnston View Road, in Osprey Village, City of Pitt Meadows (**Figure 1**). Fraser Way is classified as a collector, while Barnston View Road is classified as a local road. Fraser Way and Barnston View Road both have one travel lane each direction with on-street parking on both sides. A landscaped median is also found for Fraser Way in the vicinity of the roundabout. The posted speed limit is generally 50 kilometres per hour (kph) on all roadways in close proximity to the roundabout; it is reduced to 30 kph within the roundabout. A bus stop is located on the far-side east leg of the roundabout, and it serves buses #719 and #722. These buses circulate around the roundabout and travel back to the east leg.

The roundabout is generally surrounded by residential townhouses. Osprey Village Market and Waterfront Commons Park are located along Barnston View Road, south of the study intersection, which makes the area have a high number of pedestrians and cyclists.



Figure 1 Study Area and Roundabout Location



Marked crosswalks are provided on the east and west approaches. Although the presence of letdowns, there is no marked crosswalk at Barnston View Road legs across the approaches or enter/exit the roundabout park. **Figure 2** shows the photographs for each approach.



Figure 2 Study Intersection Approaches

3.0 Field Review Findings and Potential Issues

Two ISL Traffic Engineers, including a certified Road Safety Auditor, visited the site on a weekday afternoon. **Figure 3** shows the photos that were taken at the study area and potential issues are discussed in the following section.

Since Barnston View Road serves local traffic, it has radial approaches to the roundabout, to decrease vehicle speeds before entering the roundabout. On the other hand, with the raised median, Fraser Way has tangential approaches to the roundabout, which leads to having greater vehicle speeds in the east-west direction, conflicting with relatively high pedestrian volumes.



According to the site visit, many pedestrians use the roundabout central island as a shortcut to get to the other side of the intersection, which results in generating a high number of pedestrians crossing the circulatory roadway. Also, apparently, a significant portion of the pedestrians are children, which shows the importance of road safety in the area.

Due to the existing geometric layout of the roundabout with tangential approaches on E-W direction, drivers will speed up after yielding to the crossing pedestrians at the entry of the roundabout. Hence, the high severity collision risk is generated between the pedestrians/cyclists entering or exiting the central island and vehicles circulating the roundabout. Some unfamiliar drivers may not expect crossing pedestrians at the roundabout, causing abrupt stop and read-end collision risk.

It is also found that the roundabout circulatory way is hidden partially from pedestrians/cyclists within the central island with the landscaped trees. More specifically, pedestrians/cyclists can completely see Fraser Way east approach and Barnston View Road approaches and the incoming traffic to the roundabout.



Figure 3 Site Visit Photos taken on October 4, 2018



4.0 Road Safety Improvements

In order to improve the road safety in the study area, and to provide a safer environment for all road users, particularly for the pedestrians and cyclists crossing the roundabout to access to the central island, the following road safety improvements are recommended as follows:

- **Marked crosswalks on the north and south approaches (Barnston View Road):** Providing marked crosswalks on the north and south approaches of the roundabout could result in the better recognition of the pedestrian/cyclist for drivers.
- **Reducing the number of access points:** By reducing the number of access points from two to one on each side, the conflict points between crossing pedestrians/cyclists and vehicles would decrease. Although the farther access point on both sides has better sightlines for crossing pedestrians, the provision of marked crosswalks at the farther side of Fraser Way traffic, (i.e. the right side of Barnston View Road approach) will negatively impact the driver's concentration and decision to consider both yielding vehicles travelling from the left side and pedestrians crossing at the right side when turning right from Barnston View Road. It is also expected that Fraser Way vehicles will slow down when approaching marked crosswalks and stop for crossing pedestrians which will provide crossing gaps for vehicles turning right from Barnston View Road. Therefore, with the removal of the existing trees at the NE and SW corners to improve the sightlines, the City could consider the provision of the marked crosswalks at the left side of each Barnston View Road approach.
- **Alerting drivers' awareness:** It is understood that by alerting drivers' awareness of the existence of the park area within the central island location and park access locations, pedestrian and cyclist safety could be improved. Appropriate warning signs such as "crossing pedestrian" could be installed in advance before vehicles enter the roundabout.
- **Providing high trees in the central island (the east side):** It is expected that the landscape design of the roundabout central island plays a significant role in drivers' level of focus, and subsequently in road safety. An appropriate landscape treatment could decrease the driver's distraction due to unnecessary details of the area. For example, the existence of the high trees within the central island can block the drivers' view of vehicles on the opposite portion of the roundabout. As a result, drivers could better focus on the entry/exit approach they are driving from/to and the near surrounding elements such as crossing pedestrians. Moreover, high trees could block the view of the pedestrians/cyclists at the central island, and it will make them feel safer.

5.0 Summary and Conclusions

Traffic and pedestrian safety of the Roundabout Park, located in Osprey Village, was reviewed. No marked pedestrian crosswalks are provided for the access points to the central island. It is also found that vehicles entering the roundabout from the east and the west have relatively higher speeds due to tangential approaches that Fraser Way have. In order to increase the awareness of the drivers and other road users, it is suggested that marked crosswalks be provided on the north and south approaches. To decrease the access points from two to one on each side and reduce the number of conflicts between crossing pedestrians and right-turn vehicles, it is also recommended marked crosswalks are located at the left (near) side of the Barnston View Road approaches. Moreover, installation of warning signs could also let the drivers know in advance of the potential crossing pedestrians before they speed up. It is also found that by providing high trees at the east side of the central island, the pedestrian/cyclist would feel safer by the provided separation and drivers' focus on the near surrounding would be improved.



We trust that this Technical Memorandum meets the City of Pitt Meadows requirements. If there are any questions or further information is required, please do not hesitate to contact the undersigned.

Yours truly,

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Transportation Engineer

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Manager, Traffic Engineering and Road Safety